

WHAT IS CLAIMED IS:

1. A surface acoustic wave sensor or identification device having:
 - a piezoelectric substrate,
 - an interdigitated transducer (IDT) input/output mounted on a substrate for receiving a radio frequency (RF) signal and propagating a corresponding surface acoustic wave along a surface of the substrate,
 - an IDT reflector array mounted on the substrate and operable to receive said surface acoustic wave and reflect said surface acoustic wave in modified form back to the IDT input/output for transmission of a corresponding modified RF signal from the device, and
 - said IDT reflector array having at least one reflector segment whose reflectivity characteristics are controlled to control the nature of the modified RF signal.
2. A sensor or identification device according to claim 1 wherein the reflectivity characteristics of said at least one reflector segment are controlled during the manufacturing process to give the device a unique modified RF signal.
3. A sensor or identification device according to claim 1 wherein the reflectivity characteristics of said at least one reflector segment are controlled by a variable load externally thereof.
4. A sensor or identification device according to claim 3 wherein the external load is a transducer.
5. A sensor or identification device according to claim 4 wherein the sensor is an analog sensor.
6. A sensor or identification device according to claim 1 are in said at least one reflector segment has a fluidic chamber which in use contains fluid operable to control the nature of the reflected surface acoustic wave and hence the nature of the modified RF signal.

7. A sensor or identification device according to claim 6 wherein the chamber has an inlet and an outlet whereby in use the fluid flows through the chamber from the inlet to the outlet.
8. A sensor or identification device according to claim 6 wherein said at least one reflector segment has at least one pair of interdigitated fingers which communicate with said chamber.
9. A sensor or identification device according to claim 8 wherein said at least one pair of interdigitated fingers project into the chamber.
10. A sensor or identification device according to claim 8 wherein said at least one pair of interdigitated fingers are connected to respective bus bars and the chamber is formed between extensions of said bus bars.
11. A sensor or identification device according to claim 6 wherein the chamber has a wall with a conductive material thereon, the conductivity of the material being varied by variation of the nature of the fluid in the chamber.